FIG.1

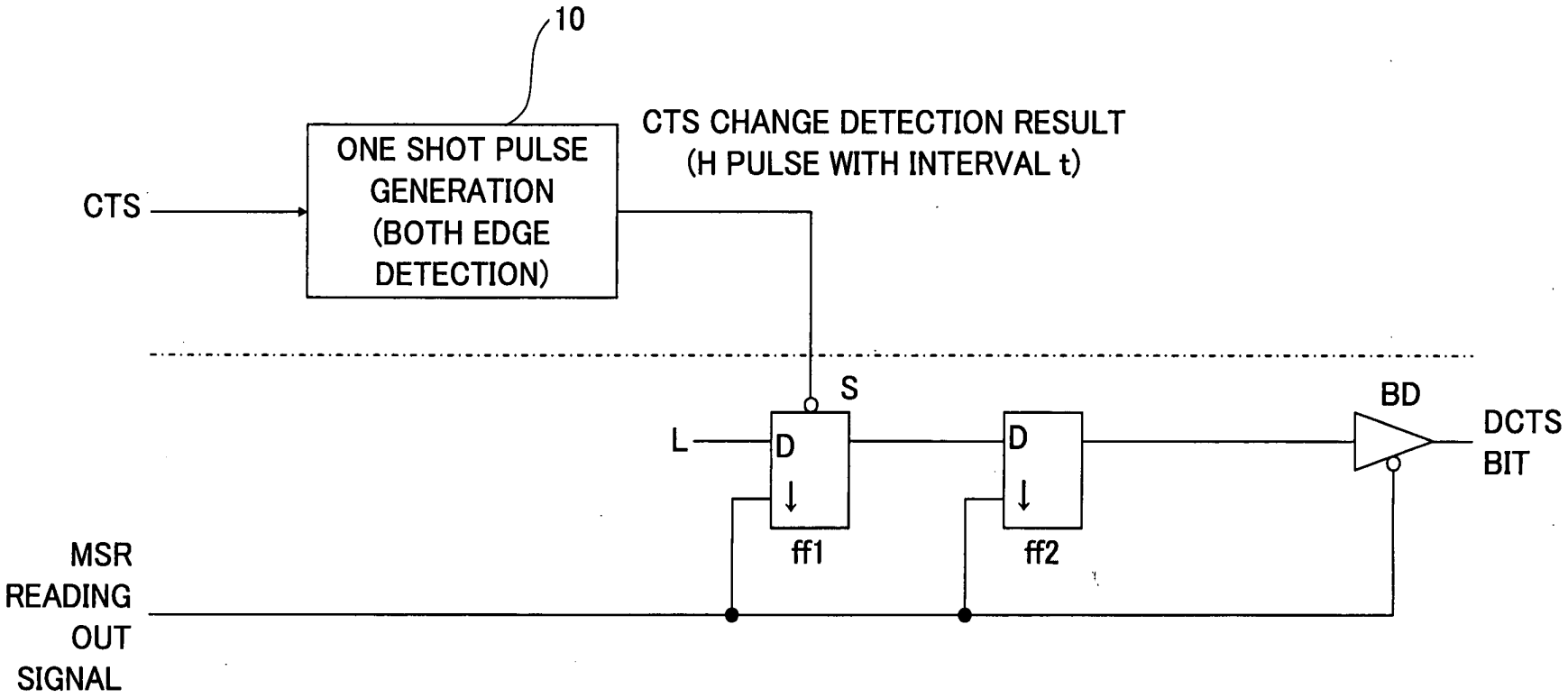

10
ONE SHOT PULSE GENERATION (BOTH EDGE DETECTION)
CTS
CTS CHANGE DETECTION RESULT (H PULSE WITH INTERVAL t)
S
L
D
D
BD
DCTS BIT
ff1
ff2
MSR READING OUT SIGNAL

FIG.2

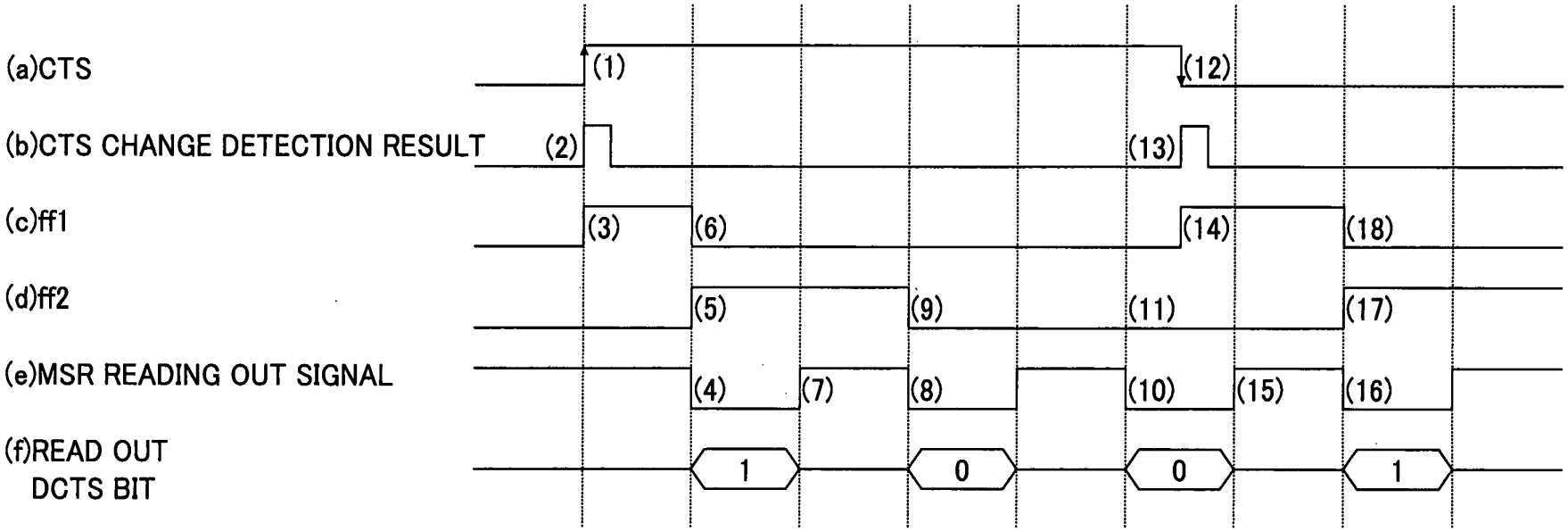

(a)CTS
(b)CTS CHANGE DETECTION RESULT
(c)ff1
(d)ff2
(e)MSR READING OUT SIGNAL
(f)READ OUT DCTS BIT
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(10)
(11)
(12)
(13)
(14)
(15)
(16)
(17)
(18)
1
0
0
1

FIG.3

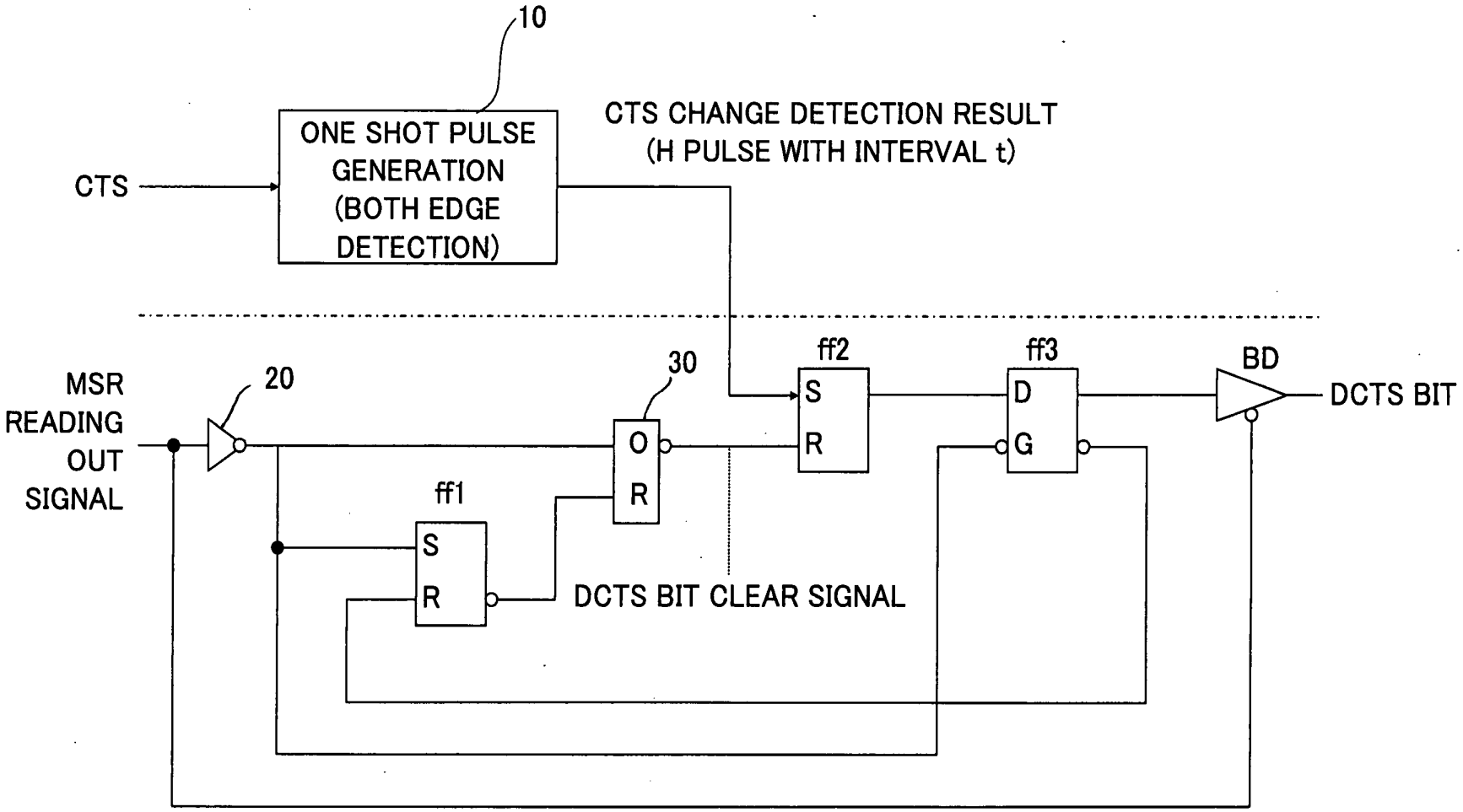

10
ONE SHOT PULSE GENERATION (BOTH EDGE DETECTION)
CTS
CTS CHANGE DETECTION RESULT (H PULSE WITH INTERVAL t)
MSR READING OUT SIGNAL
20
30
ff1
ff2
ff3
S
R
O
R
S
R
D
G
BD
DCTS BIT
DCTS BIT CLEAR SIGNAL

FIG.4

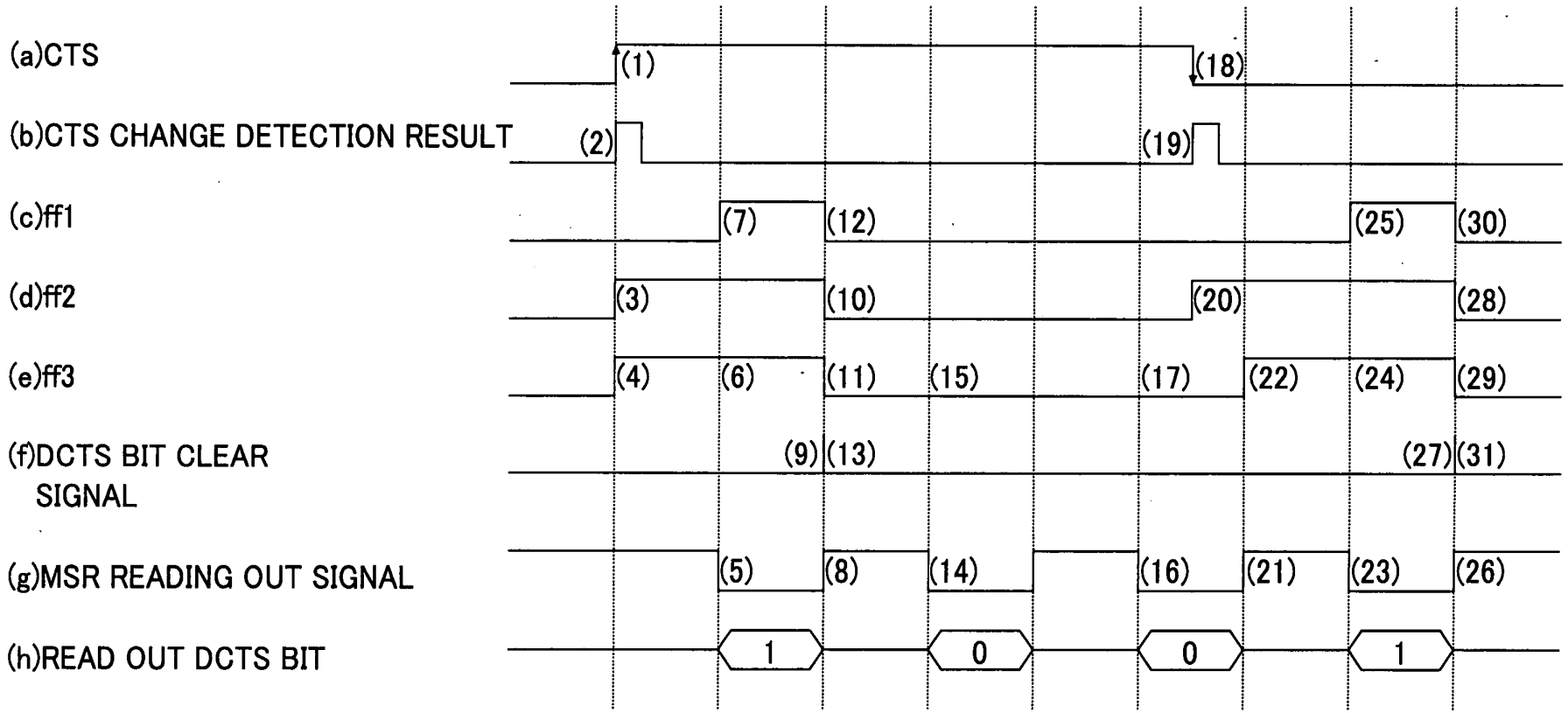
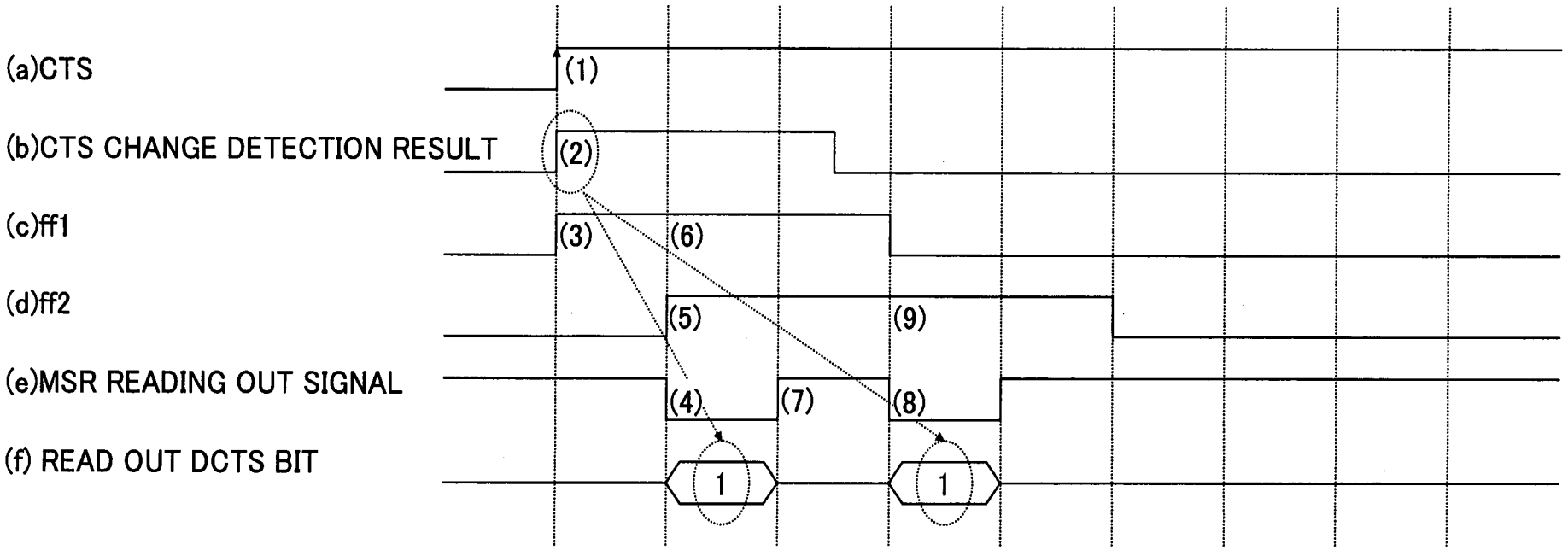
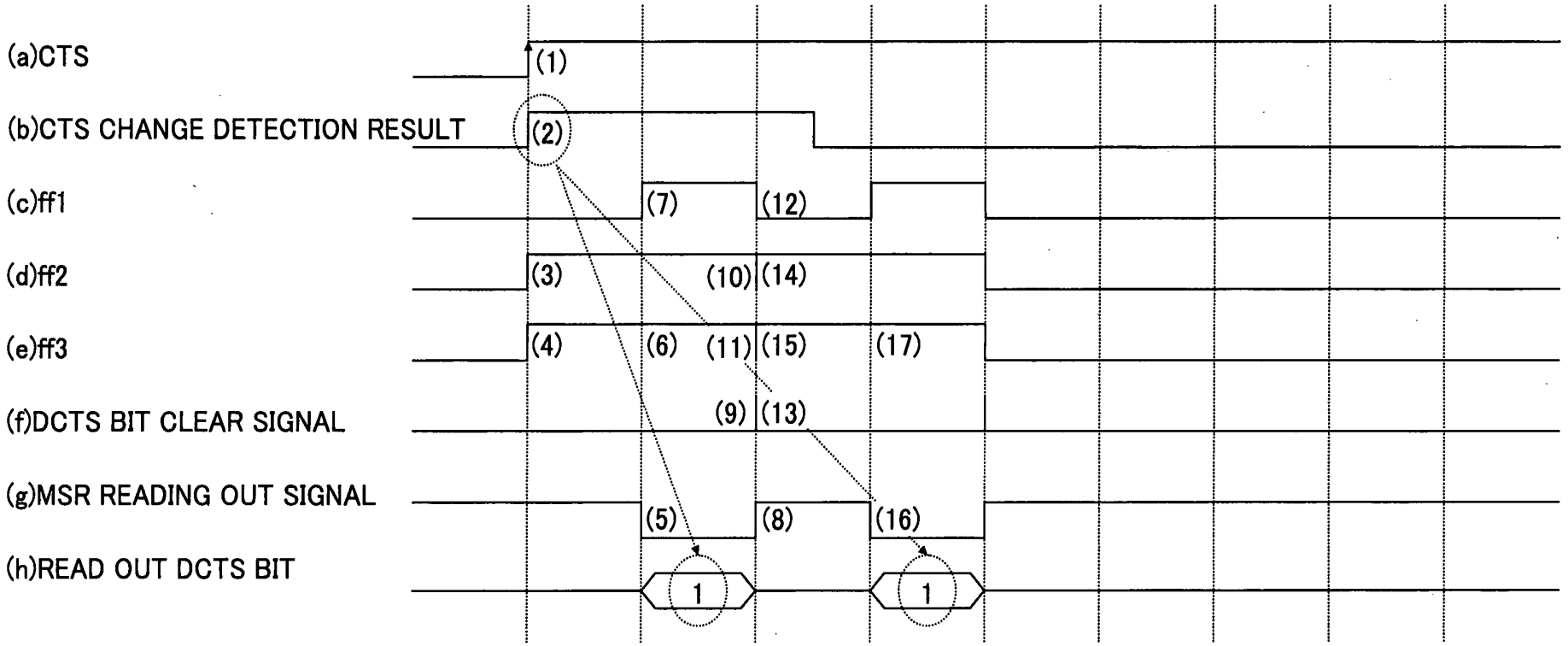

(a)CTS
(b)CTS CHANGE DETECTION RESULT
(c)ff1
(d)ff2
(e)ff3
(f)DCTS BIT CLEAR SIGNAL
(g)MSR READING OUT SIGNAL
(h)READ OUT DCTS BIT
(1)
(18)
(2)
(19)
(7)
(12)
(25)
(30)
(3)
(10)
(20)
(28)
(4)
(6)
(11)
(15)
(17)
(22)
(24)
(29)
(9)
(13)
(27)
(31)
(5)
(8)
(14)
(16)
(21)
(23)
(26)
1
0
0
1

FIG.5



(DCTS BIT = 1 IS READ OUT TWICE)

FIG.6



(DCTS BIT = 1 IS READ OUT TWICE)

FIG.7

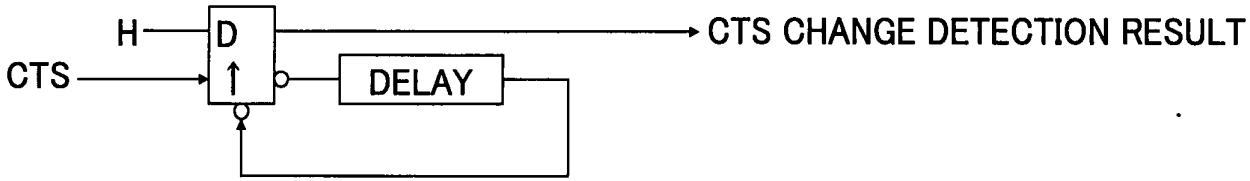

H
CTS
D
DELAY
CTS CHANGE DETECTION RESULT

FIG.8

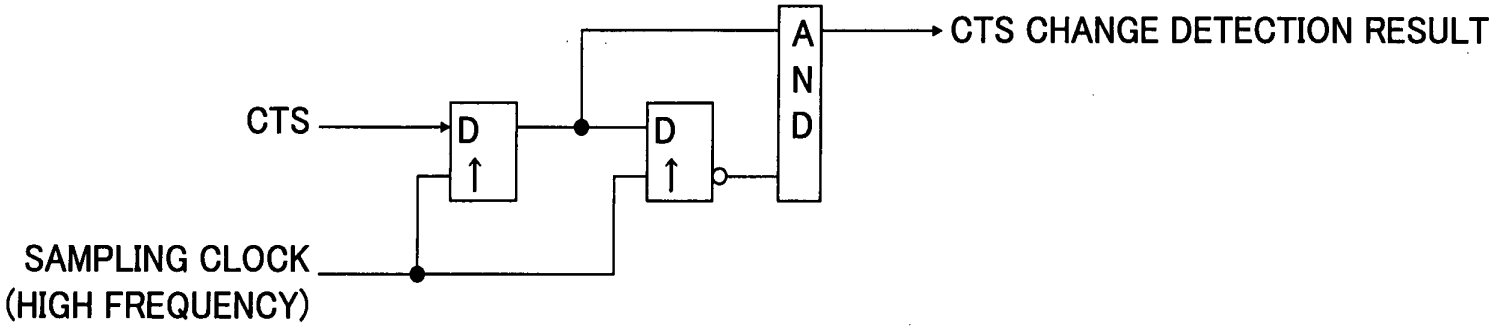

CTS
SAMPLING CLOCK
(HIGH FREQUENCY)
D
D
AND
CTS CHANGE DETECTION RESULT

FIG.9

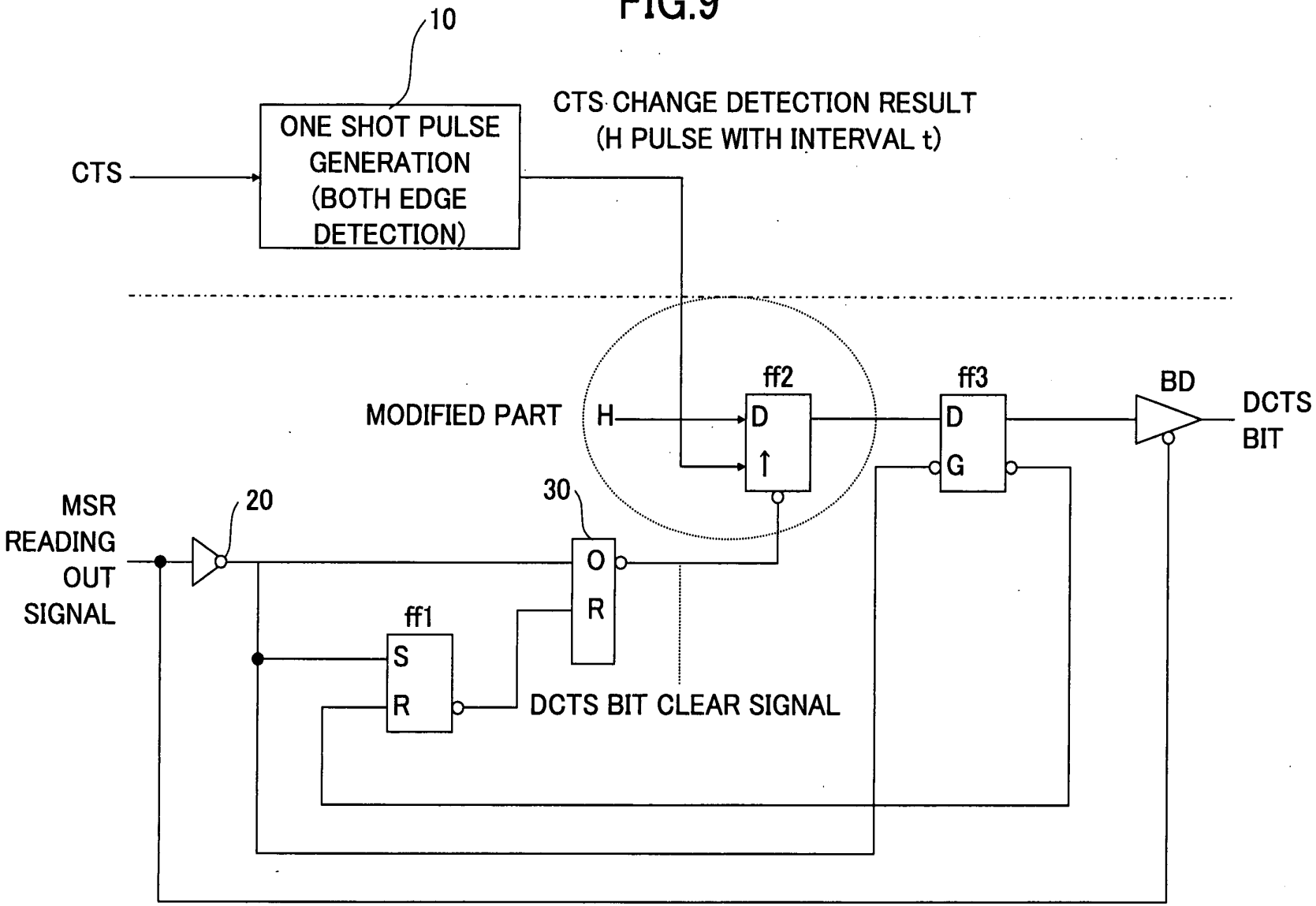

10
ONE SHOT PULSE GENERATION (BOTH EDGE DETECTION)
CTS
CTS CHANGE DETECTION RESULT (H PULSE WITH INTERVAL t)
MODIFIED PART
H
ff2
D
↑
ff3
D
G
BD
DCTS BIT
MSR READING OUT SIGNAL
20
30
O
R
ff1
S
R
DCTS BIT CLEAR SIGNAL

FIG.10

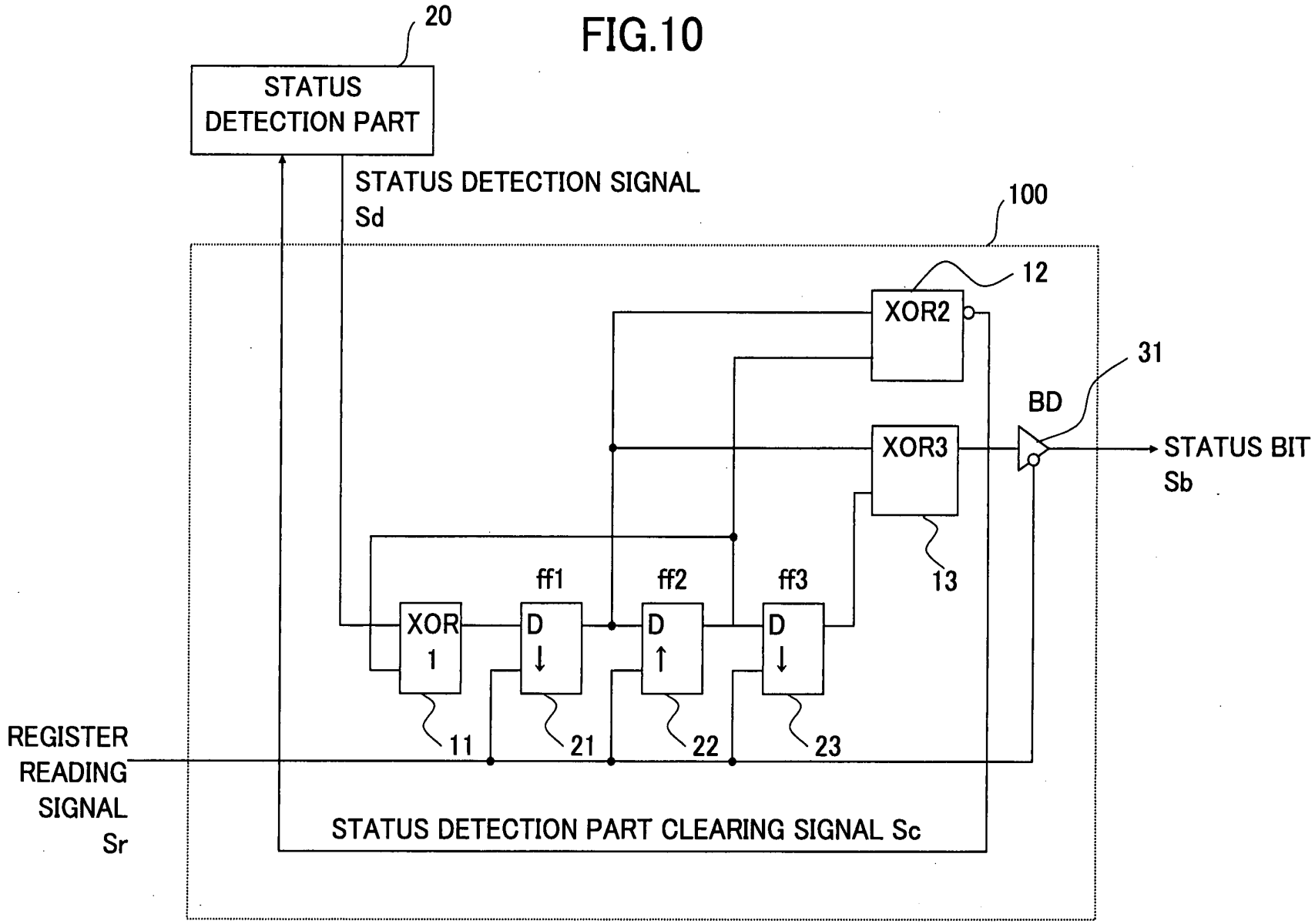

20
STATUS DETECTION PART
STATUS DETECTION SIGNAL Sd
100
12
XOR2
31
BD
XOR3
STATUS BIT Sb
13
ff1
ff2
ff3
XOR 1
D
D
D
11
21
22
23
REGISTER READING SIGNAL Sr
STATUS DETECTION PART CLEARING SIGNAL Sc

FIG.11

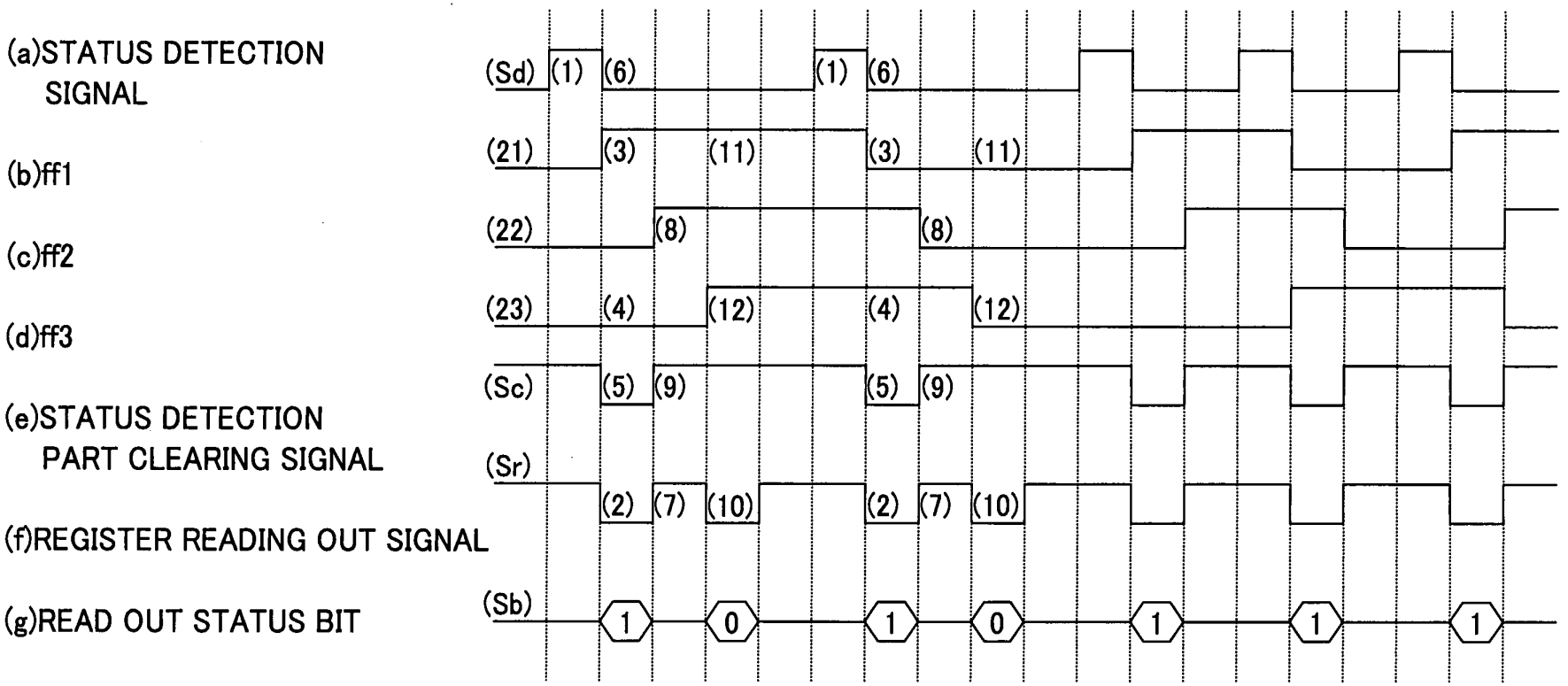

(a)STATUS DETECTION SIGNAL
(b)ff1
(c)ff2
(d)ff3
(e)STATUS DETECTION PART CLEARING SIGNAL
(f)REGISTER READING OUT SIGNAL
(g)READ OUT STATUS BIT
(Sd)
(21)
(22)
(23)
(Sc)
(Sr)
(Sb)
(1)
(6)
(3)
(11)
(8)
(4)
(12)
(5)
(9)
(2)
(7)
(10)
1
0

FIG.12

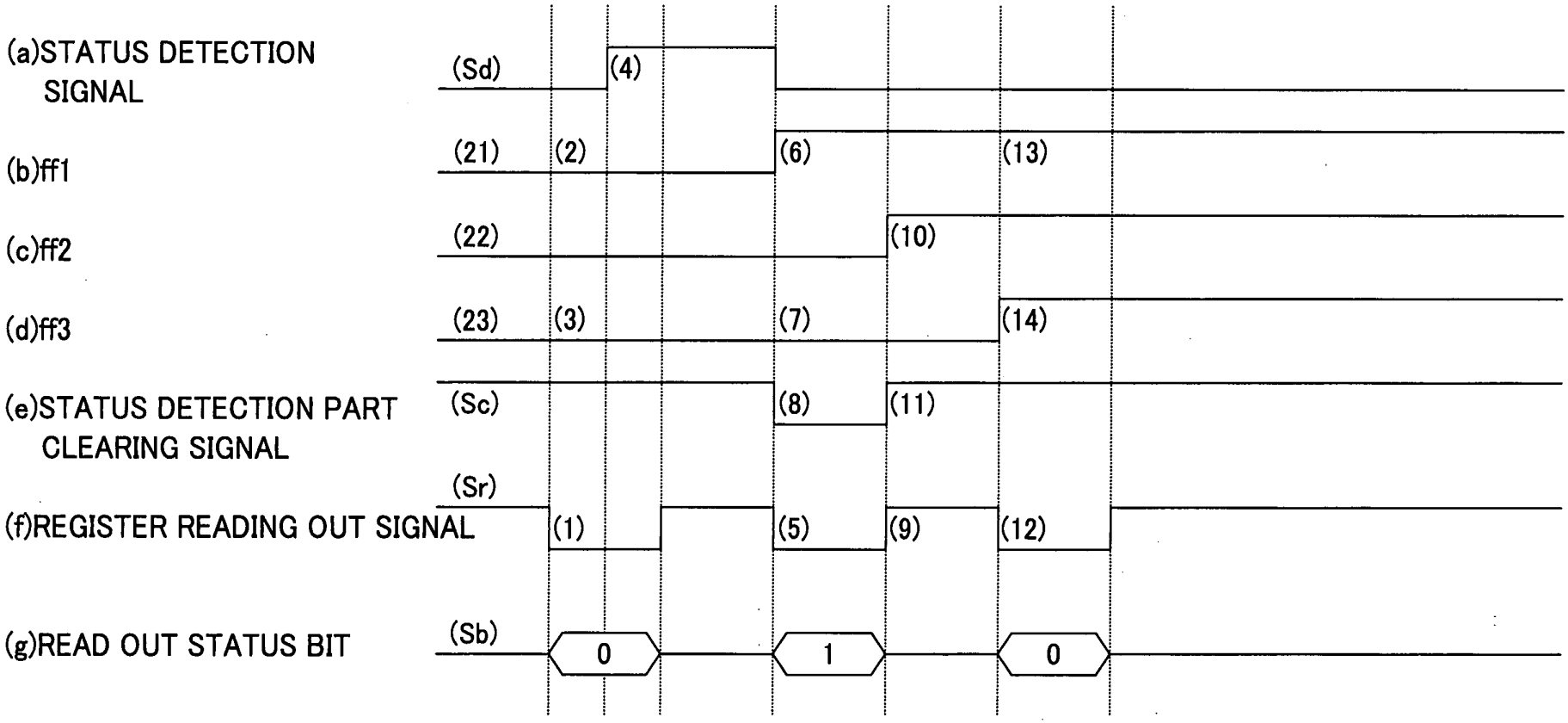

(a)STATUS DETECTION SIGNAL
(Sd)
(4)
(b)ff1
(21)
(2)
(6)
(13)
(c)ff2
(22)
(10)
(d)ff3
(23)
(3)
(7)
(14)
(e)STATUS DETECTION PART CLEARING SIGNAL
(Sc)
(8)
(11)
(Sr)
(f)REGISTER READING OUT SIGNAL
(1)
(5)
(9)
(12)
(g)READ OUT STATUS BIT
(Sb)
0
1
0

FIG.13

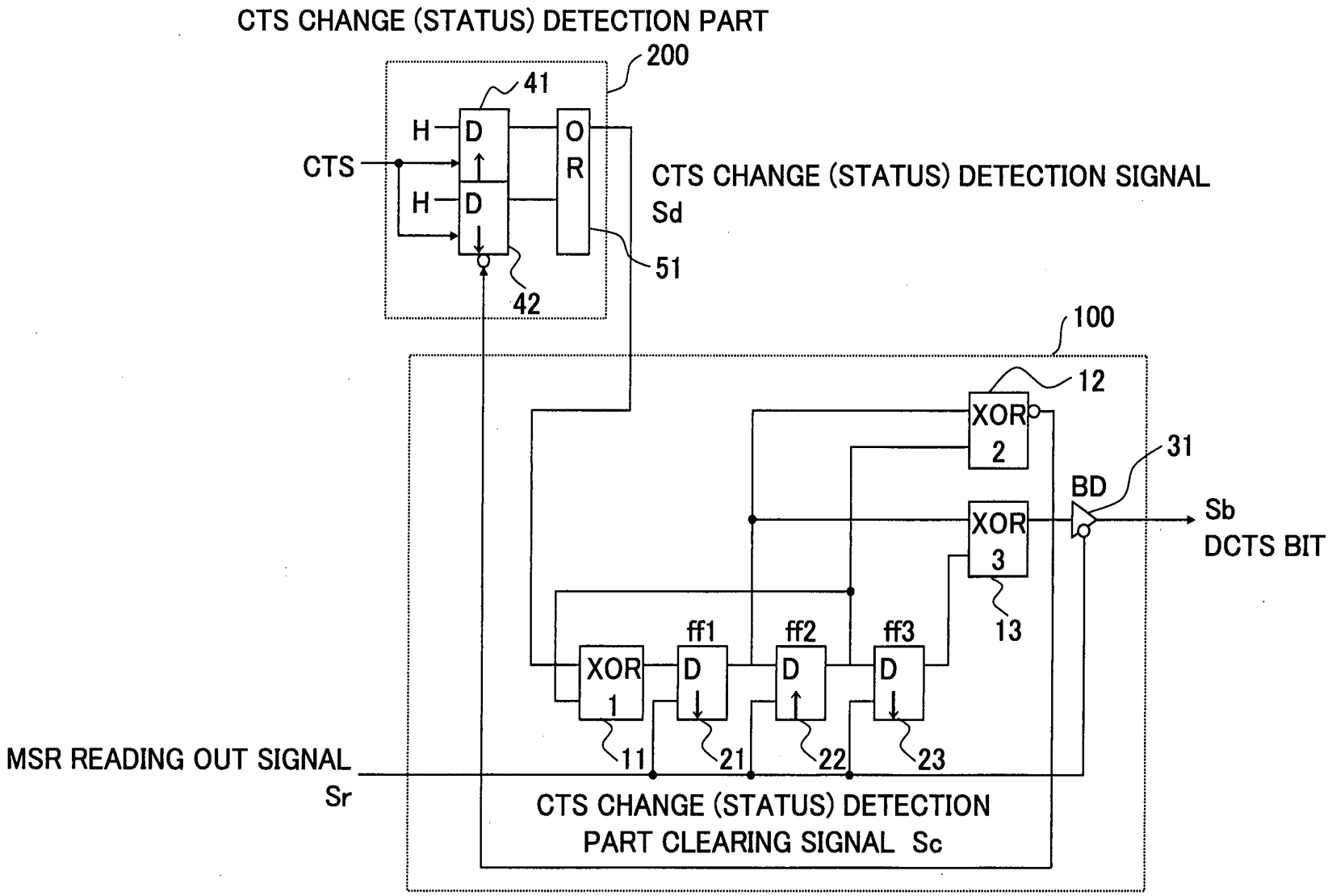

CTS CHANGE (STATUS) DETECTION PART
200
41
H
D
CTS
H
D
O
R
CTS CHANGE (STATUS) DETECTION SIGNAL
Sd
51
42
100
12
XOR
2
31
BD
Sb
DCTS BIT
XOR
3
13
ff1
ff2
ff3
XOR
1
D
D
D
11
21
22
23
MSR READING OUT SIGNAL
Sr
CTS CHANGE (STATUS) DETECTION
PART CLEARING SIGNAL Sc

FIG.14

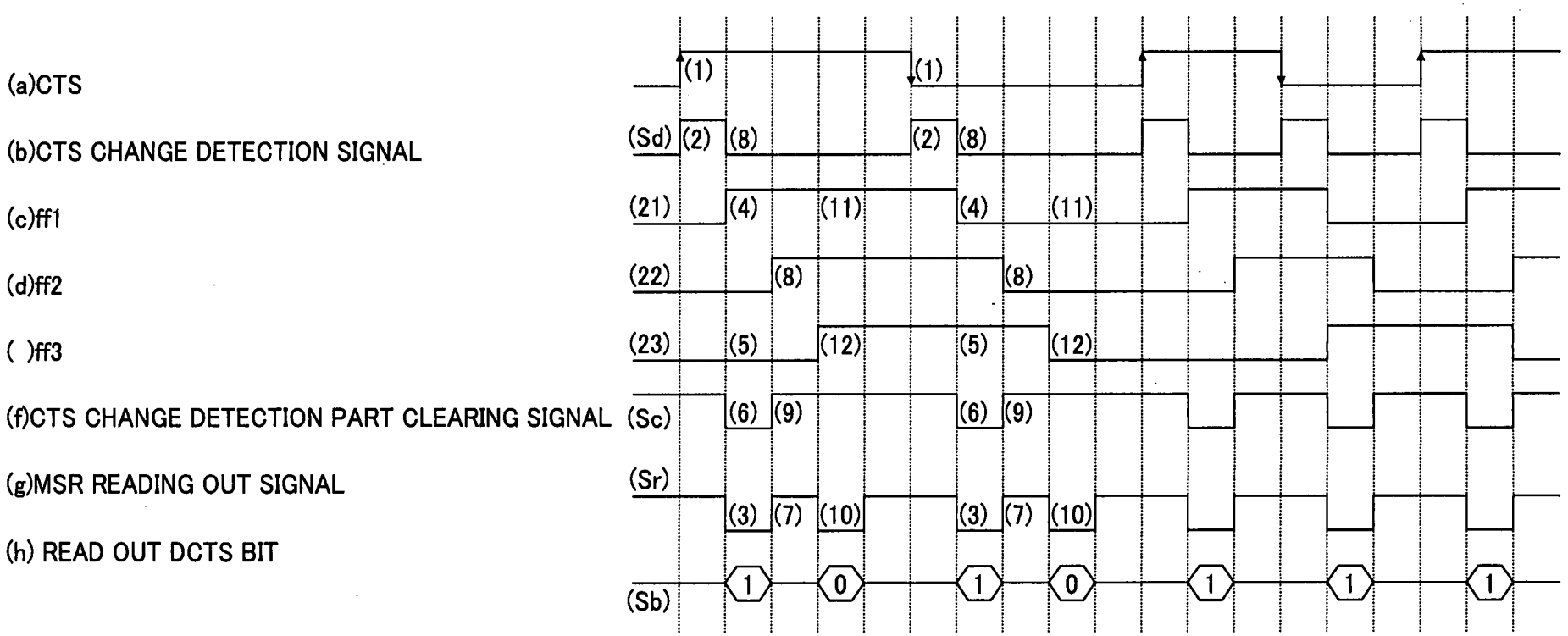
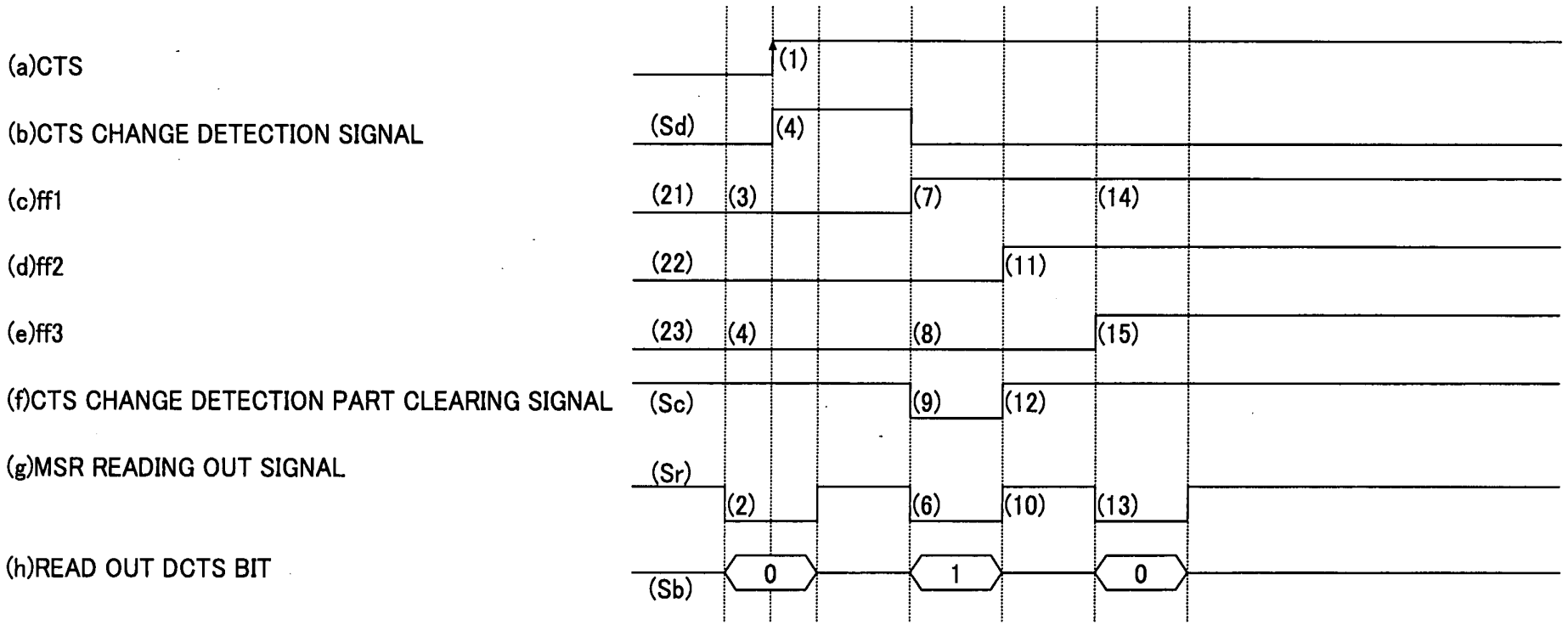

(a)CTS
(b)CTS CHANGE DETECTION SIGNAL
(c)ff1
(d)ff2
( )ff3
(f)CTS CHANGE DETECTION PART CLEARING SIGNAL
(g)MSR READING OUT SIGNAL
(h) READ OUT DCTS BIT
(Sd)
(21)
(22)
(23)
(Sc)
(Sr)
(Sb)
(1)
(2)
(8)
(4)
(11)
(5)
(12)
(6)
(9)
(3)
(7)
(10)
1
0

FIG.15


(a)CTS
(b)CTS CHANGE DETECTION SIGNAL
(c)ff1
(d)ff2
(e)ff3
(f)CTS CHANGE DETECTION PART CLEARING SIGNAL
(g)MSR READING OUT SIGNAL
(h)READ OUT DCTS BIT
(Sd)
(21)
(22)
(23)
(Sc)
(Sr)
(Sb)
(1)
(2)
(3)
(4)
(6)
(7)
(8)
(9)
(10)
(11)
(12)
(13)
(14)
(15)
0
1
0